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Evaluation of an RCT web-based intervention for adherence in cystic fibrosis

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Presenter Disclosure

Helen White PhD

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- *Gilead Science - Grant support [Grant No. IN-UK-205-D001]*
- *UKCRN Portfolio ID 13624*

Background

- Reported adherence rates in CF are as low as 40-50%
- In our own adult patient (n = 410) adherence is 63% (medication possession ratio) *White et al (2017)*
- On-line adherence programmes for adults with CF have not yet been fully evaluated
- We aimed to determine the impact on adherence of a web-based intervention for adults with CF

White H, Shaw N, Denman S, Pollard K, Wynne S, Peckham DG. (2017) Variation in lung function as a Wmarker of adherence to oral and inhaled medication in cystic fibrosis *European Respiratory Journal* 2017 Mar 8;49(3).

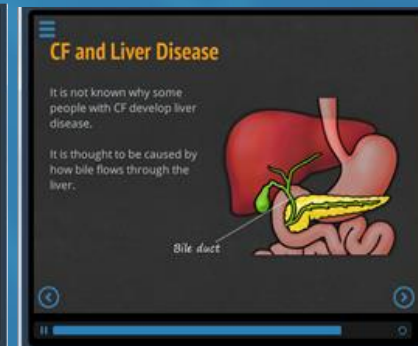
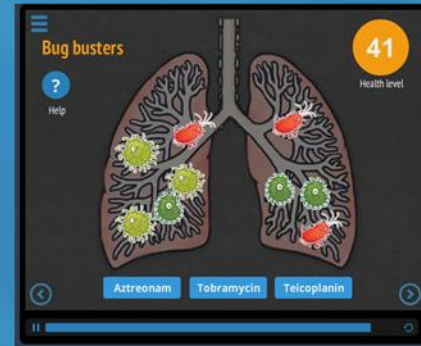
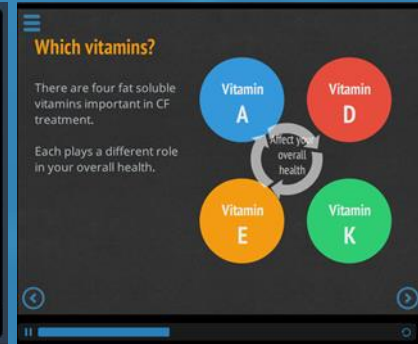
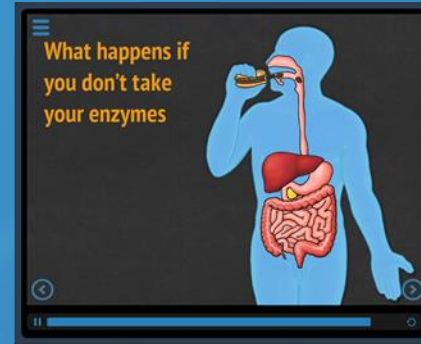
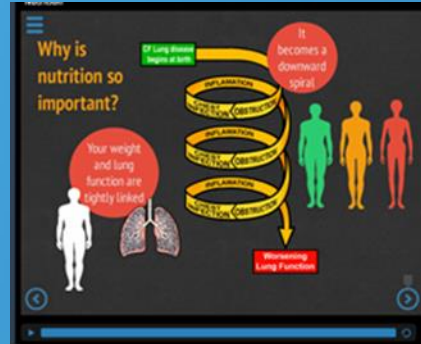
Phase 1 (Module development)

- 6 on-line modules developed
- 40 video stories filmed and embedded within all giving reasons to change and motivations to take treatment eg
 - Parenthood
 - Further study
 - Availability for new treatments



Development

- Interactive material
- Integrated 'drag and drop', games, quiz
 - Nutrition
 - Pancreatic enzyme replacement therapy
 - Vitamins
 - Airways & treatments
 - Antibiotics
 - Liver disease



2nd phase - RCT design

- Usual care or web-based intervention (n=100)
- Participants issued with tablet technology
- Granted structured access over 12 months
- Modules released at intervals
- Access tracked on-line
- Facility to gather participant feedback on the system



Results

- Data collected at baseline, 6 months and 1 year
 - **Adherence (Medication possession ratio)***
 - Knowledge questionnaire*
 - QoL (CFQ-R)*
 - Anthropometric data
 - Respiratory function [FEV₁(%), FVC(%), FEV₁ rate of decline (%)and coefficient variation FEV₁ (%)
 - Fat soluble vitamin status

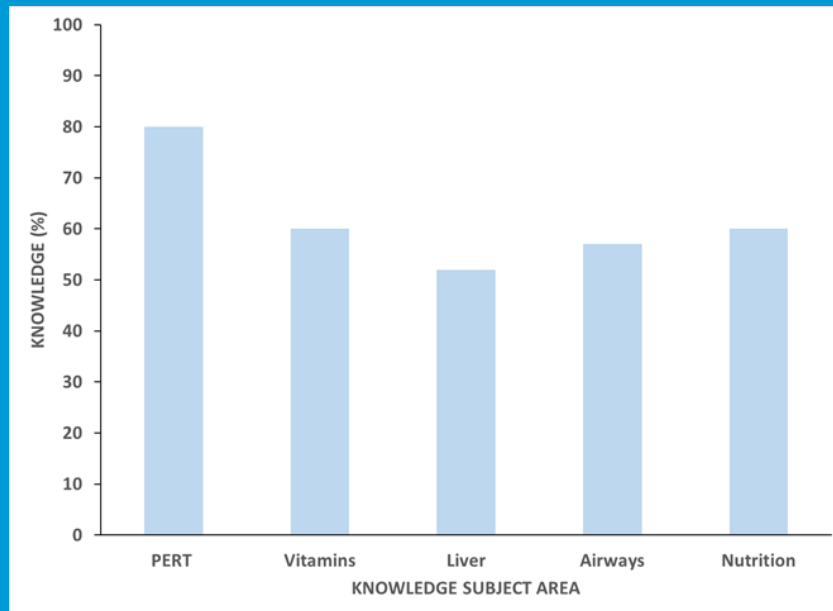
* Collected at baseline and 1 year only

Interim results

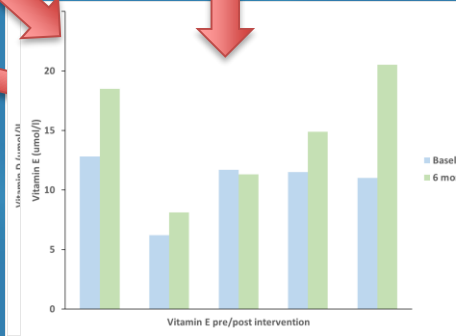
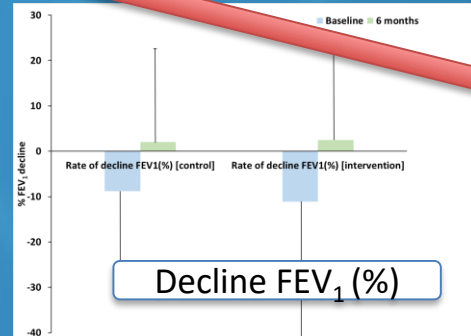
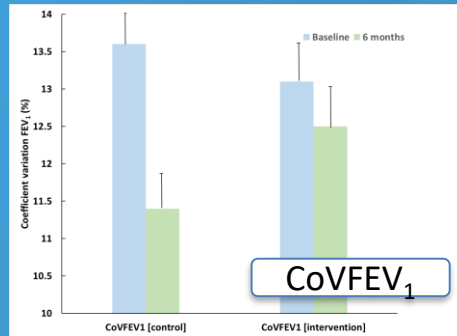
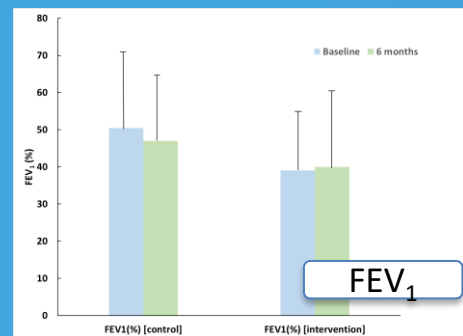
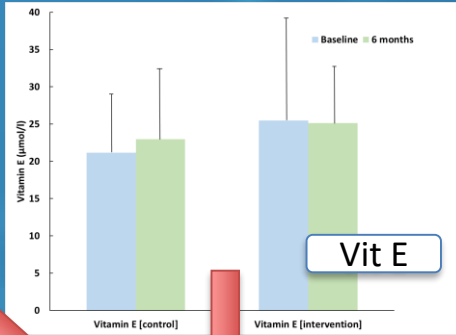
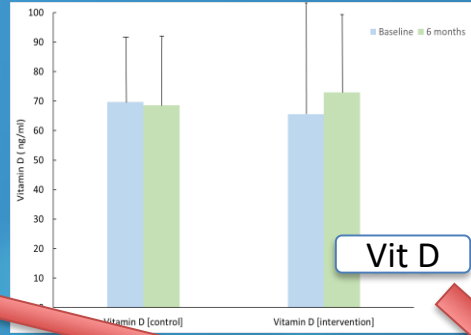
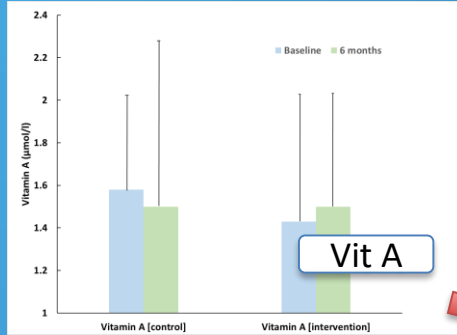
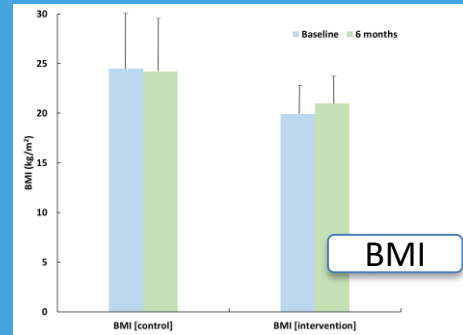
Baseline

N=100 Reporting interim data n=60	Intervention n=31	Control n=29	P-value
Gender (male)	16 (51.6%)	15 (51.7%)	NS
Age (years)	27.0	30.6	P=0.51
Pseudomonas	67.7%	62%	P=0.79
CFRD (%)	12 (38.7%)	13 (44.8%)	P=0.028
Genotype DF508/DF508 (%)	18 (58.1%)	18 (64.3%)	P=0.61
FEV ₁ (%)	39% (±17.5)	50.4% (±21.2)	P=0.028
BMI (kg/m ²)	20.0 (±3.0)	24.6 (±5.3)	P=0.001
Adherence (MPR) (%)	66% (±24.6)	54% (±28.6)	P=0.43
Baseline knowledge (%)	64.7% (±13.8)	58% (±2.8)	P=0.61

Knowledge



Interim data – 6 months



Significance adjusted for baseline measure, BMI, Age and lung function]

Conclusion

- A web based adherence intervention has shown
 - Improved trends in Vitamin A,D, (but no significant changes in values at 6 months above controls)
 - Significant improvements for those with suboptimal Vitamin levels at baseline were shown
 - No changes in lung function, variation in lung function or rate of lung decline above that of controls
 - No changes in BMI above that of controls
 - Full evaluation at 1 year is now required